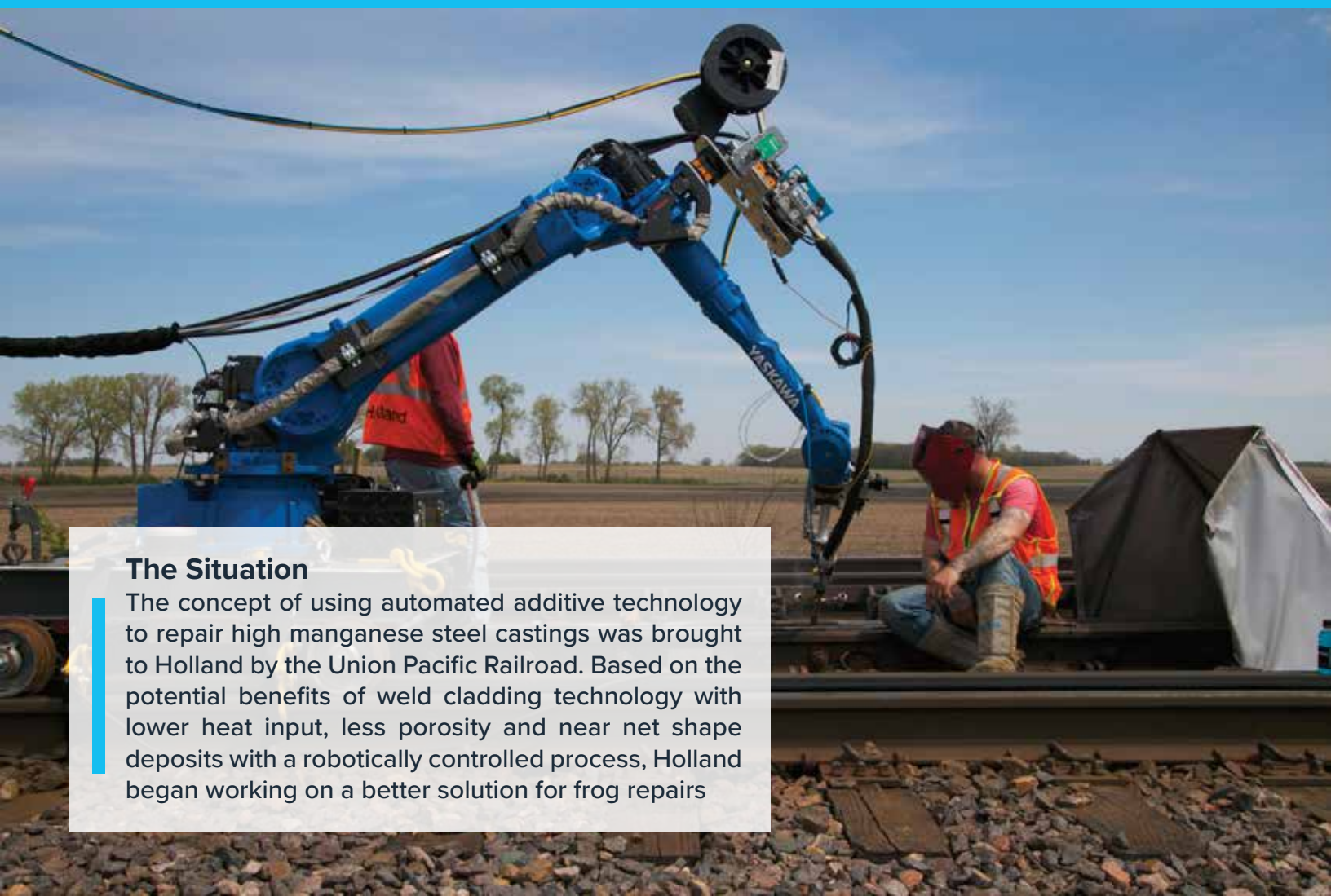




# A NEW STANDARD FOR SAFER LONGER LASTING REPAIRS



## The Situation

The concept of using automated additive technology to repair high manganese steel castings was brought to Holland by the Union Pacific Railroad. Based on the potential benefits of weld cladding technology with lower heat input, less porosity and near net shape deposits with a robotically controlled process, Holland began working on a better solution for frog repairs



# CHALLENGE

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Railroad special trackwork such as frogs and crossing diamonds have long been a challenge to maintain and repair in the field. Frogs are manufactured out of cast austenitic high manganese steel known for its excellent work hardening characteristics and high toughness.

However, this material creates a unique challenge to repair in the field as it cannot exceed 500 degrees Fahrenheit. Railroads report that traditional repairs to frogs often only last weeks to six months before requiring additional maintenance.

# SOLUTION

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HAMR™ deploys similarly to a MobileWelder™, and its service includes pre-weld material removal using plasma cutting and robotically controlled hot wire cladding (welding) to build back the damaged area. This process provides improved welding through lower heat input, on parent material, maintaining temperatures below 500 degrees. This results in a refurbishment that is higher quality, longer lasting and can be completed two to three times faster than a traditional repair weld. This helps reduce costs and maintenance time.

Additionally, HAMR™ is much safer for both operators and the railroads. Operators encounter much lower fumes and the ability to step away from them due to the robot doing the welding. They also have increased ergonomic benefits as they do not have to be sitting and leaning over for hours at a time.

**Email** [sales@hollandco.com](mailto:sales@hollandco.com)  
**Visit** [hollandco.com](http://hollandco.com)  
**Call** 708.672.2300